

Docket No.: 46500-000117/US (PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Provisional Application of: Yong Cheol PARK

Application No.: 60/469.005

Filed: May 9, 2003

For: METHOD FOR RECOVERING DISC

MANAGEMENT INFORMATION FROM OPTICAL DISC WRITE ONCE

Confirmation No.: 6166

Art Unit: N/A

Examiner: Not Yet Assigned

LETTER SUBMITTING ENGLISH TRANSLATION OF PROVISIONAL APPLICATION

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

This provisional application was filed in a language other than English, and an Englishlanguage translation of this provisional application and a statement that the translation is accurate were not previously filed either in this provisional application or any related non-provisional application(s).

In accordance with 37 C.F.R. § 1.78(a)(5), Applicant submits herewith an English translation and Verification of Translation of the above-identified Provisional Application No. 60/469,005 filed on May 9, 2003.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Dated: April 16, 2009

Respectfully submitted.

Esther H. Chong Registration No.: 40,953

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road

Suite 100 East P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicant

Attachments: English Translation of Provisional Application No. 60/469,005

Statement of Accurate English-Language Translation



CERTIFICATE OF VERIFICATION

I, Gil Jin Young of Patrea Co. Lad., 1105 Rm. Yeosam bldg. 648-23. Yeoksam-dong. Ganam-to. Scoul. Republic of Korea state that the attached document is a true and complete translation to the best of my knowledge of the Korean-English language and that the writings contained in the following pages are correct English translation of the specification of the Provisional Application No. 60/469/005.

Dated this 29th day of 2008

Signature of translator:

Name: Gil Jin Young

C DEFECT MANAGEMENT FOR WRITE-ONCE RECORDING MEDIA

Description of Background Art

- updated and, this information is recorded as TDFL or TDDS form in TDMA area. (TDMA information . In order to implement a Defect Management (DM) in BD-WO, DMS(DDS and DFL) should be comprises TDFL and TDDS.)
- nformation like the case of BD+RE, but also LRA, OPC, and Spare area use information, and TDFL In TDDS, as a whole structure information of a disc, not only spare area size and each area sointer and so on are recorded.
- In TDFL, defect Information occurred in use is recorded: Once a defect occurs, it is updated at an appropriate cycle.
- TDFL and TDDS information is updated at an appropriate cycle.
- . Before the latest TDFL and TDDS is recorded in the disc, in cases of not being updated due to an error by power-failure or of not being able to read the latest TODS (rith) due to scratch, finger printer, etc., even though updated, it may be a problem to find out the latest dise information. Accordingly, the present information is to provide a recovery method for this matter.

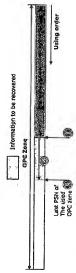
*BD-WO Blu-ray Dist - Weis-Once (Diss), TDMA: Temporary Defect.Management Ayea TDE: Transparry Dist | List TDE: Transparry Dist Optimized Statement | 1.14 Representative information to be recovered

Last Recorded Address.

Space bitmap
 Last PSN of the used OPC Zone

- TDE

Method for recovering OPC Information



-Step 1 : Read OPC area use information recorded in the (n-1)th TDDS +Step 2 : Search recorded/unrecorded area after detecting RF wave form +Step 3 : Find out correct OPC use information, update it in TDDS

(Note) Though It is possible to find start point in unrecorded area by using RP search whole of OPC cone. It is possible to reduce whole of the search time by using the past TODS (Hormation recorded in ToMA).

* PSN: Physical Sector Number OPC; Optimum Power Control

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Information to be recovered eccover. IRA and SBM Information using the same method as one for recovering OPC area

In a case of displaying Disc record state using LRA

	Updated LRA2
0	LRAZ
	ited
_	Updated LRA1
	LRAI

•In a case of displaying Disc record state using SBM

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Ш	

 LRA: Last Recorded Address SBM: Space Bit Map

C METHOD FOR RECOVERING DFL INFORMATION

A Case of OSA1 (example)

TYPO		Replacement clusters (Pointer to the first usable spare area recorded to be updated
,		

- Step 1: By using TDFL pointer recorded in (n-1)th TDDS, recover (N-1)th Defect list reading (n-1)th TDFL list.
 - and read the first usable spare entry pointer information in each spare area recorded (N-1)th TDDS. Step 2: Observe RF waye form; and search recorded/unrecorded area to find out unrecorded area.
 - Step 3 : Read replacement dusters not recorded in (n-1)th TDFL from the area found out in Step 2.
- Step 4: Extract necessary Information for TDFL entry composition by reading Access block of each cluster read. (EX) From Address unit of Access Block -> PSN of replacement cluster

From User control block of Access Block 7 PSN of defective cluster

(Note) For the above recovery process, if a defective cluster is recorded as a replacement cluster in spare area, it is necessary to record defective cluster address in a user control block of the replacement duster.

- Generate defect list using the above information to update it in DFL.
- Correct TDFL can be recovered by applying the above process to each assigned spare area.

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

Express Mail Label No.							
		11	VENTOR(S)				
Given Name (first and middle [if any])		Family Name or Surname		ne (Cri	Residence (City and either State or Foreign Country)		
Yong Cheol			PARK		Gyeongg	i-de, Rept	ublic of Korea
Additional inventors are bei	ng named on th	e se	parately number	ed sheets att	ached her	eto	
	TITLE C	F THE INV	ENTION (280 ch	naracters me	ix)		
D	EFECT MANA	SEMENT F	OR WRITE-ONC	E RECORDI	NG MEDI	4	
Direct all correspondence to:	C	ORRESPO	ONDENCE AD	DRESS			
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	ENCLOSED	APPLICAT	TION PARTS (cf	heck all that	apply)		
Specification Number of Pages 4 CD(s), Number							
Drawing(s) Number of Sheets Other (specify)							
Application Data She	et. See 37 C	FR 1.76			_		
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)							
Applicant claims small	entity status.	See 37 CF	R 1.27.				
A check or money order is enclosed to cover the filling fees							
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fees or credit any overpayment to Deposit Account Number: 08-0750 160							
Payment by credit card. Form PTO-2038 is attached.							
The invention was made by the United States Government	an agency of ent.	the United	States Gover	nment or ur	der a co	ntract wit	h an agency of
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Yes, the name of the U.S. Government agency and the Government contract number are:							
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USE ONLY FOR FILLING A PROVISIONAL APPLICATION FOR PATENT
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□ DEFECT MANAGEMENT FOR WRITE-ONCE RECORDING MEDIA

- Description of Background Art
- BD-WO에서 Defect Management (DM)을 수행하기 위해 DMS (DDS, DFL) 을 update 해야 하며, 이 정보를 TDFL, TDDS로 TDMA 영역에 기록한다 (TDMA 정보는 TDDS 및 TDFL로 구성됨)
- 뿐만 아니라, BD-WO에서만 필요한 정보 즉, LRA, OPC 영역 사용 정보, Spare 영역 사용 정보, TDFL에 • TDDS에는 disc 전체 구조에 대한 정보로, BD-RE에서와 같이 spare 영역 크기 및 각 영역에 대한 정보 대한 pointer 등이 기록된다.
- TDFL에는 사용 중에 발생한 defect 정보가 기록되며, defect가 발생하면 적당한 주기로 update된다.
- TDFL 및 TDDS 정보는 TDMA 영역에 적당한 주기로 update된다
- 기록되었다 하더라도 read 시 scratch, finger printer등과 같은 이유로 error가 발생하여 latest TDDS (nth)를 읽지 못하는 경우, 최신의 disc 정보를 찾아야 하는 문제가 발생하며, 본 발명에서는 이에 대한 • 최신의 TDFL 및 TDDS를 disc예 기록하기 전에 power-failure와 같은 이유로 update하지 못했거나, recovery method를 제시하고자 한다.

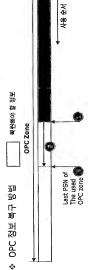
* BD-WO: Bib-ray Disc - Write-Once (Disc), TDMA: Temporary Defect Management Area TDEL: Temporary Defect List TDDS: Temporary Disc Definition Structure

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복원하고자 하는 대표적인 정보

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- Last Recorded Address
- Space bitmap
- Last PSN of the used OPC Zone
- TPFL



•Step 1 : (n-1)th TDDS에 기록되어 있는 OPC 영역 사용 정보를 읽음 •Step 2 : RF 파형을 관찰하여 기록/미 기록 영역 search •Step 3 : 울바른 OPC 사용 정보 파악, TDDS에 update함. (Note) OPC Zone 전체를 RF search하여 미기독영역의 start point를 찾을 수 있으나, TDMA에 기록되어 있는 과거 TDDS 정보를 이용함으로써 전체 search 시간을 줄일 수 있다

* PSN: Physical Sector Number OPC: Optimum Power Control

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LRA, SBM 정보 복구 방법

• OPC 영역 복원 방법과 동일한 방법을 사용하여 복원함.

● Disc 기록 상태를 LRA로 표시하는 경우



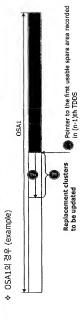
• Disc 기록 상태를 SBM으로 표시하는 경우



* LRA: Last Recorded Address SBM: Space Bit Map

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配合 파 DFL 정보



- Step 1: (n-1)th TDDS에 기록되어 있는 TDFL pointer을 이용, (n-1)th TDFL list를 읽어 (N-1)번째까지의 Defect list를 복구하고, (N-1)th TDDS에 기록되어 있는 각 spare 영역의 first usable spare entry pointer 정보를 읽는다.
 - Step 2 : RF 파형을 관찰하여 기록/미 기록 영역 search하여 미 기록 영역 위치 파악
- Step 3 : Step 2에서 구한 위치부터 (n-1)th TDFL에 기록되어 있지 않은 replacement cluster들을 read 함
- Step 4 : 읽어드림 각 cluster의 Access block을 읽어 TDFL entry 구성에 필요한 정보를 추출 (EX) From Address unit of Access Block -> PSN of replacement cluster
- (Note) 위의 복원 작업을 위해 defective cluster를 spare area에 replacement하여 기록하는 경우, user control block에 defective cluster의 address를 기록해 놓는 것이 필요함. From User control block of Access Block → PSN of defective cluster
 - •위의 정보를 이용하여 defect list를 생성하여 DFL에 update한다.
- 위의 process를 할당되어 있는 spare 염역에 대해 각각 적용하여 올바른 TDFL를 복원해 낼 수 있다.

United States Patent & Trademark Office Office of Initial Patent Examination

Application papers not suitable for publication

SN	60469605	Mail Date_05	-69-03		
1	Non-English Specification		,		
	Specification contains drawing(s) on pa	ge(s)	or table(s)		
	Landscape orientation of text	ification 🛘 Clai	ims 🛘 Abstract		
	Handwritten ☐ Specification ☐ 6	Claims 🛘 Abstr	act		
	More than one column	ion 🗆 Claims	☐ Abstract		
\Box	Improper line spacing	on 🛘 Claims	☐ Abstract		
	Claims not on separate page(s)				
	Abstract not on separate page(s)				
	Improper paper size Must be either A	4 (21 cm x 29.7 cn	n) or 8-1/2"x 11"		
	☐ Specification page(s)		☐ Abstract		
	☐ Drawing page(s)		☐ Claim(s)		
	Improper margins				
	☐ Specification page(s)		☐ Abstract		
	☐ Drawing page(s)		☐ Claim(s)		
	Not reproducible	Section			
Reason			age(s)		
	Paper too thin	☐ Drawing page(s)		
	☐ Glossy pages	☐ Abstract			
	☐ Non-white background	☐ Claim(s)			
. 🗆	Drawing objection(s)				
	☐ Missing lead lines, drawing(s)				
	☐ Line quality is too light, drawing(s)				
	☐. More than 1 drawing and not numbered correctly				
	☐ Non-English text, drawing(s)				
	☐ Excessive text, drawing(s)				
	☐ Photographs capable of illustration,	drawing(s)			